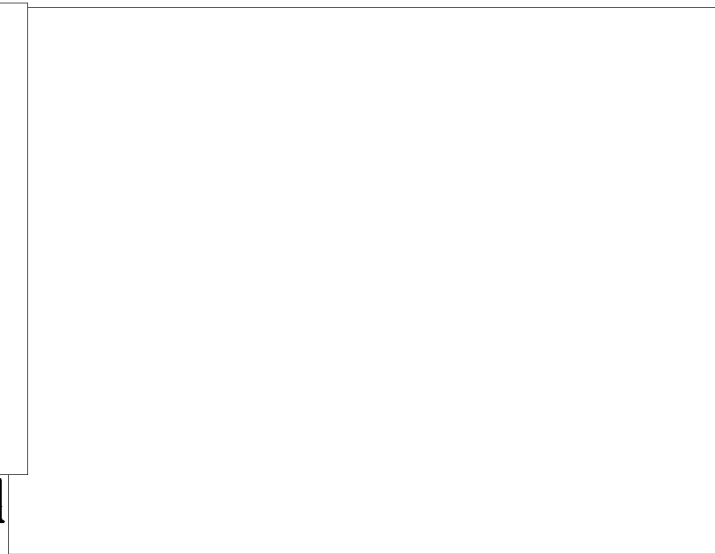
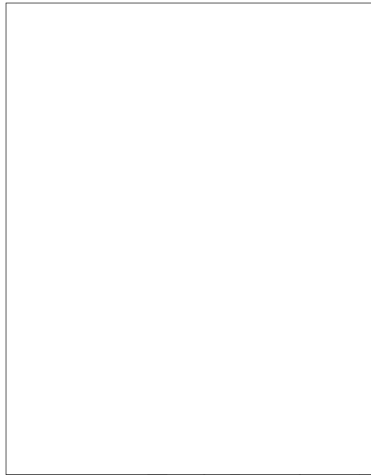


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West Siberian Oil and Gas Region: Manpower and Settlement



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West Siberian Oil and Gas Region: Manpower and Settlement



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A Research Paper

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West Siberian Oil and Gas Region: Manpower and Settlement

Summary

Manpower and settlement problems in exploiting northern West Siberia are almost as vast as that region's oil and gas riches--possibly the world's largest. Although intensive oil and gas exploitation began in the Russian Republic's Tyumenskaya Oblast' in the 1960s, manpower needs have been growing more rapidly than ever under the ambitious 11th Five-Year Plan (1981-85). At the same time a dearth of housing and other support infrastructure has spurred a labor shortage--in part because of a constant turnover of population. For nearly two decades, four-fifths of the migrants arriving each year have eventually departed.

The huge manpower needs of the 1981-85 Plan stimulated a debate over whether to foster permanent migration (with a buildup of cities and infrastructure) or to rely more on the rotation of short-term work teams from established areas to the oil and gas fields. The Plan incorporated both views, but initially it emphasized urban buildup and the permanent settlement of new workers. Since then the continued high labor turnover and exorbitant building costs have resulted in a policy to double the use of temporary teams. Some progress has been made in housing, but we believe that the original goal of opening more than 1 million square meters of housing in that area by the end of the Plan is unrealistic.

The troublesome manpower and settlement picture is not likely to improve appreciably during the balance of the Five-Year Plan. The harshness of the natural environment and the remoteness from the centers of production will continue to impede attempts to reach housing goals, and families will remain reluctant to accept such primitive living conditions. Although the increased use of temporary work teams and continued use of migrant workers, some foreigners, and possibly forced laborers will help the overall effort, manpower deficiencies will continue to be large. This situation will slow the buildup of the oil and gas fields despite the importance the Soviets attach to their development.

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The Task

According to a major Soviet geographic publication, the effort to tap the oil and gas riches in northern West Siberia requires "hundreds of thousands" of workers. These supply labor for exploration; construction of oilfield facilities, pipelines, industrial plants, supply lines, and cities; oil and gas extraction; other industrial activities such as logging; all types of transport; public services; and research and planning. [REDACTED]

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The Soviets report no precise job figures--either totals or by category--possibly because no master plan exists and they have not found ways to gauge a region's overall needs. Instead, they dispense figures piecemeal. Soon after the announcement that the 11th Five-Year Plan (1981-85) would task northern West Siberia with producing 395 million metric tons of oil a year (7.9 million barrels a day) and with drilling more than 20 million meters of well depth a year by the end of the period, for instance, the Glavtyumenneftegaz (1) director said simply that this would require a "radical increase" to about 100,000 drillers for 450 drilling brigades. He said little about the other workers needed for drilling brigades and did not mention the other jobs in oil and gas fields. [REDACTED]

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The Soviets' imprecision makes it impossible for us to determine overall manpower needs, especially for an ever-changing area like northern West Siberia. It is clear, however, that the task of oil and gas development is immense and will draw heavily on the USSR's manpower and finances for years. [REDACTED]

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Population Growth

Throughout Siberian development, manpower has been in short supply. Economic growth has always required substantial government-induced in-migration because of the area's sparse population. The Tsarist government, from the 17th century on, sent convicts to work the forests and mines in the region; and, after completion of the Trans-Siberian Railroad two centuries later, subsidized peasant settlers to satisfy Siberia's growing food requirements. [REDACTED]

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Following the 1917 revolution, many migrants arrived in

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southern Siberia as part of Soviet development programs focused largely on building a metallurgical industry and extending agricultural lands eastward. Mostly, the northern areas were bypassed until the 1960s when oil and gas exploitation began. Though thousands of workers now migrate into the northern development area each year, that region may face an increasing manpower shortage with the nationwide slowdown of growth in the labor force that Soviet demographers expect during the 1980s, according to a US Department of Commerce study. [REDACTED]

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Population growth--particularly urban--has been dramatic during the two decades since oil and gas exploitation began. In the two administrative subunits of Tyumenskaya Oblast' where energy development is now concentrated, the population almost quadrupled in 20 years--from 186,000 (1959 census) to 727,000 (1979 census)--growing from one-tenth to one-fourth of West Siberia's total. Urban residents comprised less than half of the population in 1959, but by 1981 three-fourths of the estimated (by Soviet officials) 865,000 total lived in 35 urban settlements. [REDACTED]

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The massive influx does not, however, represent permanent or even long-term settlement. The economic journal Voprosy ekonomiki reports that almost 80 percent of the immigrants, 1,320,000 out of 1,700,000, left during the 1965-75 decade; according to Izvestiya vsesoyuznogo geograficheskogo obshchestva, the exit continues at about the same rate. Recent Soviet Army veterans and married workers living with their families in reasonably comfortable housing have proved more likely to stay than have unattached young people or married workers living apart from their families. [REDACTED]

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Policy Debate

Although large-scale oil and gas development was already well under way when the 11th Five-Year Plan took shape, the massive new manpower demands stimulated a debate in key socioeconomic publications over whether to rely primarily on permanent migration and urban buildup or to expand the rotation of short-term work teams from established areas to the oil and gas fields. [REDACTED]

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Demographer V. I. Perevedentsev has been a major

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advocate of a buildup of cities and towns in northern West Siberia, complete with schools, shopping centers, and other modern urban conveniences that would induce thousands of young migrants to settle there and help conquer the north permanently. According to Naseleniye, trudovoye resursy SSSR, he believes thousands of the workers already in the oil and gas region might stay if housing and infrastructure improved and wages were cut to discourage saving to finance a return home or travel to more lucrative jobs farther east.

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Some Soviet economists point out that northern West Siberian development on traditional lines would require the resettlement of at least 3 million people--at about 500 to 600 rubles (\$700 to \$800) each (Sotsiologicheskoye issledovaniya), plus an annual 21,000 rubles (\$29,000) apiece in living-cost arrangements, four times more than in temperate zones (Trud, Pravda, and Voprosy ekonomiki), as well as the construction of more than 40 million square meters of housing (Voprosy ekonomiki) in what might become ghost towns after the oil and gas reserves are depleted.(2) Economist A. Khaytun, in Voprosy ekonomiki, urges that the north be developed "with only a limited increase in the region's population" and that urban buildup be minimal. He warns that coincidence of the "peak periods of industrial and civil construction" at the early stages of development projects exaggerates housing demands and spurs overbuilding.

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To limit an increase in permanent settlement and yet assure resource development, Khaytun early on suggested a two-part plan. The "expeditionary" (or "watch") method would bring workers without families from distant (2,000 to 3,000 km) "support" cities for 15- to 20-day tours at work sites. The "tour of duty" (or "shift") method would bring workers from much closer (200 to 500 km) "base" cities or towns within the region for four- to seven-day tours. While on duty, both kinds of workers would live in temporary structures at the work sites or at small nearby settlements. This dual system would not rule out development of northern base cities but would--by slowing the influx to such cities--allow construction to stay ahead of population increase. This system, moreover, would make it possible to borrow seasoned oil workers from older oil regions, hold down the inflated peak population in new oil regions, and

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reduce the need to find new employment for residents after oil deposits are exhausted. Khaytun conceded that the expeditionary method would involve greater transportation costs but insisted that costs for maintaining full-time workers in the north are so high that annual savings through the combined system would be substantial. []

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The 11th Five-Year Plan incorporated both views but at its start leaned more toward urban buildup and in-migration of permanent settlers. Persistent unacceptably high labor turnover and exorbitant building costs, however, later convinced officials to back greater use of expeditionary teams, which are now to double by the Plan's end. They already comprise at least one-third of all the area's gas and oil and construction workers. The resulting development policy is an uneasy blend of these divergent views. []

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Labor Force Makeup

The region's labor force is drawn from every major Soviet republic, Soviet statistics show, but the larger contingents are from the Azerbaijan SSR and the Bashkir and Tatar ASSRs--the older oil-producing regions of the USSR. In the last two decades both numbers and proportions of Russians, Ukrainians, and Belcrussians have increased while those of the indigenous northern peoples (the Khanty, Mansi, and Nentsy) have decreased, particularly in the towns. With a few exceptions, these locals prefer reindeer herding to industrial work and know little Russian. []

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Soviet forced labor camps are located in northern West Siberia, and some of the inmates, as well as some unconfined parolees and probationers, are being used for work related indirectly or directly to gas and oil activity in that area. Work at the forced labor camps--at Surgut (light industry), and at Labytnangi (construction and manufacturing), and at Nizhnevartovsk (urban construction), and at Lokosovo (light industry)--indirectly supports the region's gas and oil effort. Moreover, it is possible that work by some unconfined forced labor parolees and probationers may directly support construction of the six pipelines that the 11th Five-Year Plan calls for in that region. []

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[] such workers are used regularly in large construction projects--including pipeline compressor stations. []

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Temporarily present in the oil and gas region may be some of the nearly 90,000 foreign workers--about three-fourths of them East Europeans, largely Bulgarians--believed to be in the USSR. [REDACTED]

[REDACTED] No definite data link these foreign workers with northern West Siberia's oil and gas effort. [REDACTED]

Also present on an ever-changing basis are temporary expeditionary and tour-of-duty workers, who account for at least one-third of all the region's gas and oil and construction workers. As more northern "base" cities are built, tour-of-duty workers will be drawn increasingly from them. [REDACTED]

High Labor Turnover

The massive flight of labor from the northern oil and gas region costs the state an estimated 75-80 million rubles (\$104-111 million) a year, according to the Siberian department of the All-Union Academy of Sciences. High labor turnover and long periods when no work is accomplished (travel to and from sites, rest and relaxation, and interruptions) reduced annual average on-the-job time in the mid-1970s to 163 days for industrial workers and 135 days for construction workers--as shown by Narodnoye khozyaystvo RSFSR. [REDACTED]

The thousands of workers who go to the oil and gas region are responding to government inducements. These include a one-time settlement bonus, a wage differential 1.5 to 4.0 times the national average, paid leave 1.5 to 2.0 times the national average, and free transportation to and from vacations. On completing full tours of duty, workers returning to their areas of origin are promised preferential treatment in finding housing and in buying an automobile--as well as preferential retirement terms. [REDACTED]

Cross-country movement in search of better jobs seems relatively unstructured--surprisingly, in view of the planned economy and controlled society. According to the publication Sotsiologicheskkiye issledovaniya, about three-fourths of the in-migrants move to West Siberia as individuals; only one-fourth come as a result of official migration programs. Those moving as a result of organized

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programs are, on the average, 23 years old and better educated than the nationwide average. More than 30 percent of them are specialists with considerable practical experience. Of the three-fourths who moved on their own (average age, 32) many have to be given special on-the-job training--a costly, slow process, but one that manpower-hungry project managers feel is necessary. [redacted]

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Worker dissatisfaction sets in quickly. Not only do the newcomers find the extreme weather and isolation more trying than they anticipated, but they also discover that high wages do not translate into high living standards in an area where the lack of amenities is acute and food and consumer goods prices exorbitant. Stroitel'naya gazeta reports that housing in some areas is so poor that many workers--even whole families--live in shanties, barn-like huts, or primitive trailers. Such workers, according to Voprosy ekonomiki, feel wages should be another 30 to 40 percent higher to meet actual living costs. [redacted]

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Urban services and infrastructure are deficient even in the base cities. During the first half of the 1970s, according to the economic publication Ekonomika i organizatsiya promyshlennogo proizvodstva, allocations per worker in northern West Siberia declined from 33 rubles (\$46) to 12.5 rubles (\$17) a year--only slightly higher than the oil industry average for the USSR as a whole; they have dwindled even more since then. [redacted]

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Housing

As northern West Siberia's oil and gas exploitation began to intensify, Soviet planners concurred that adequate housing would have to be built for all workers, whether long or short term. Such construction, however, is usually accorded low priority. In 1979, Voprosy ekonomiki reported that only 27,000--fewer than one-third of Glavtyumenneftegaz's 90,000 regular employees--lived with their families in permanent housing. [redacted]

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According to Arkhitektura SSSR, the agreed-upon housing development plan comprised:

--Base cities--large, populated centers (such as Nizhnevartovsk, Surgut, and Nadym) with a concentration of

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industrial, construction, transportation, and distribution enterprises.

--Transitional or "satellite" settlements--semiurban areas housing 2,000 to 6,000 people--not as built-up as cities but more built up than watch settlements.

--Expeditionary (watch) settlements--located less than 30 kilometers from work sites and housing 1,000 expeditionary workers (usually with two-story wooden dormitory buildings, a medical station, store, mess hall, and social hall).

--Mobile settlements--temporary facilities close to work sites and housing 60 to 100 tour-of-duty workers (they are fully transportable knock-down modular structures with social halls, mess halls, living space, and room for drying work clothes). [redacted]

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Some city planning reflected what a deputy division chief of USSR GOSPLAN called "slavish devotion to the conception of a single compact permanent city"--where the experience, methods, and even problems of urban construction in warmer regions were mechanically transferred to the region of pioneer development, disregarding atmospheric conditions, local capabilities, and opportunities to use less expensive local building materials. Other planning--particularly the northern designs of LenZNIIEP and SibZNIIEP (3)--has been very creative and practical. Building placement in northern settlements is especially important as protection from the weather. Nadya, for instance, has C-shaped blocks of nine-story housing with enclosed courtyards containing kindergartens, nurseries, and schools; entrance doors and windows generally are three layers thick, and some streets have covered crossings. [redacted]

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Much of the housing in the oil and gas region is prefabricated, and more than half of it uses large paneling--some of it made locally in Nizhnevartovsk, says Sovetskoye Rossiya. About half the housing consists of five-story apartment houses, and about 5 to 10 percent are nine-story, according to Arkhitektura SSSR. Wood housing--initially considered "esthetically degrading" as well as uncomfortable, short lived, and difficult to build--is now also being used; wood (about 14 million cubic meters a year)

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is plentiful in timber-rich Tyumenskaya Oblast', and other housing materials are often scarce. According to several Soviet accounts, Urengoy's first microbroughs were made of wood, SibZNIIEP has designed two kinds of two-story wood houses, and some individuals have built one-story wood houses despite a dearth of building materials and tools for private use. Some housing in base cities is designed to be mobile and temporary. Also, according to the economic journal Planovoye khozyaystvo, floating dormitories, hotels, and clubs are being considered to serve remote areas during the shipping season on the region's many broad rivers. []

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Many social, cultural, and service buildings are made of brick--an expensive operation at the outset when bricks were brought in from distant provinces at the cost of one ruble apiece. Pravda reports that Tyumenskaya Oblast' now has its own modest brick production--thanks to good clay deposits in the north and in the middle Ob' region, and the use of keranzit, a lightweight concrete aggregate. []

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Housing problems remain enormous because of--as Leonid Brezhnev had cited--the inadequacies of construction organizations operating as contractors and delayed delivery of materials for housing and engineering projects. Work is often low grade and utility construction frequently delayed. There is a shortage of heating facilities even though in some cases (as in Nadym) builders are "standing beside an ocean of gas for heat." Soviet newspaper and magazine articles complain that planning, administration, and services are provided by various ministries that coordinate little with each other and lack dedication. As for the USSR Ministry of Construction, observed one article, "No one remembers a time when they coped with their tasks, though Tyumenskaya Oblast' is the main base for the development of the natural riches of Siberia." []

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At the outset of the 11th Five-Year Plan, Soviet planners envisioned that more than 1 million square meters of housing (of all kinds) would be opened in northern West Siberia during the five years of the Plan. Because only 180,000 square meters of a planned 300,000 were delivered in the previous three-year period and major supply and construction problems continue despite measurable progress, we believe the goal will not be met. What one Soviet writer called the "raw and difficult hinterland" of Siberia is a

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harsh taskmaster. Nearly one-fifth of any Siberian investment is spent for the unusually rigorous preparatory work the area demands, waste and misuse of funds are widespread, and building costs are double the costs in the settled European USSR, according to TASS.

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1 Chief Administration for the Construction of Petroleum and Gas Industry Enterprises in Tyumenskaya Oblast'.

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2 Exploration of gas and oil deposits lasts five to six years, construction takes five to eight years, and exploitation lasts no more than 20 to 30 years.

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3 The Leningrad and Siberia Zonal Scientific Research Institutes for Modular and Experimental Residential and Public Building Design.

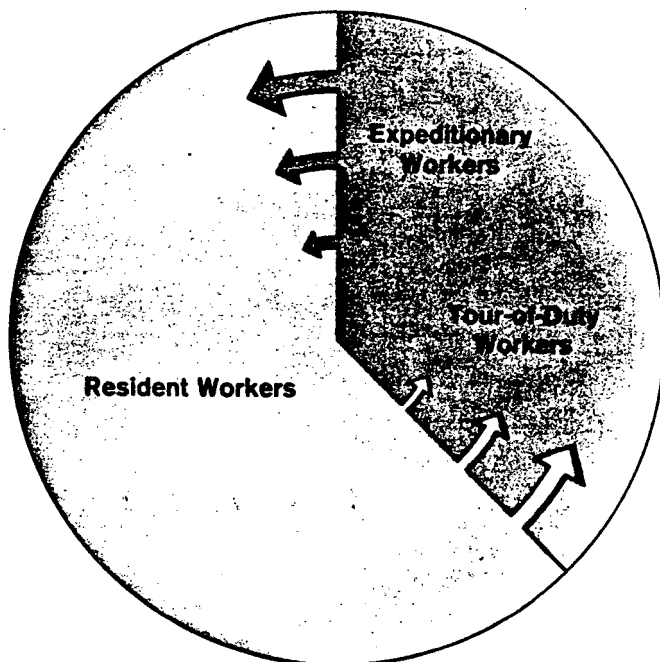
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Workers in West Siberian Oil and Gas Region

**Resident Workers**

- Area of origin—mostly from other parts of USSR; now residents of Tyumenskaya Oblast'
- Length of tours—regular, full-time work
- Living sites near work—northern cities and towns; transitional or "satellite" settlements (semi-urban, housing 2,000–6,000 people); sometimes makeshift barracks, railway cars, or huts directly at work sites
- Outlook: Will continue to comprise majority of workers, but percentage of total may shrink as number of expeditionary workers mounts

Expeditionary ("Watch") Workers

- Area of origin—distant (2,000–3,000 km) "support" cities, largely in older oil regions
- Length of tours—usually 15–20 days (alternating with rest and recreation)
- Living sites near work—usually expeditionary settlements less than 30 km from work sites and housing 1,000 workers; sometimes mobile settlements close to work sites
- Outlook: Total to be doubled during 11th Five-Year Plan (1985–85)

Tour-of-duty ("Shift") Workers

- Area of origin—close (200–500 km) "base" cities, mostly in southern Siberia
- Length of tours—usually four–seven days (alternating with rest and recreation)
- Living sites near work—usually mobile settlements close to work sites and housing 60–100 workers; sometimes expeditionary-type settlements
- Outlook: As more northern "base" cities are built, TOD workers will increasingly be drawn from them; these will be categorized as resident workers

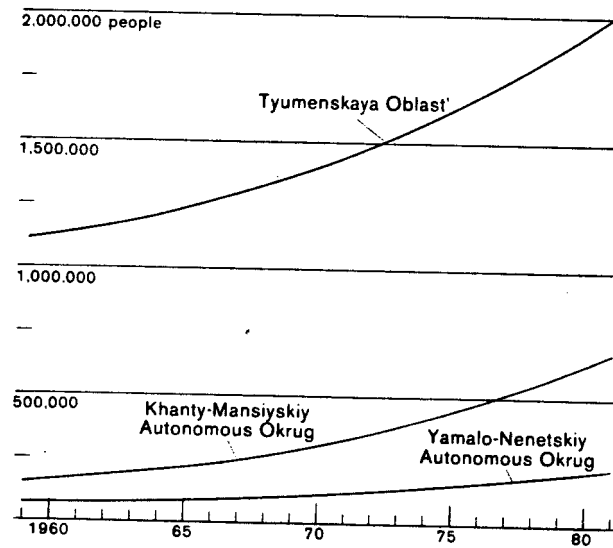
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Population Trends in Tyumenskaya Oblast'



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